



Internal Herd Growth



Farm Credit
OF WESTERN NEW YORK

Generating Profits through Management



Total Dairy Management

\$\$\$ Agricultural Finance and Management at Cornell \$\$\$
Department of Applied Economics and Management



What is Internal Herd Growth



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- ⌘ Generating more dairy replacements than you need to maintain herd size.
- ⌘ Interaction of two components:
 - ☑ How many replacements do you need to maintain herd size?
 - ☑ How many replacements are you generating?
- ⌘ Many different areas of farm operations impact these two components.



How Many Replacements do You Need?



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⌘ Centered in the milking herd.

☐ How many cows have to be replaced?

☐ Why do they have to be replaced?

☐ Died

☐ Mastitis

☐ Reproduction

☐ Low milk production

☐ Etc.

☐ What could be done to decrease the number that need to be replaced?



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Economics



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- ⌘ By requiring fewer replacements to maintain herd size, you minimize expenses associated with maintaining herd size.
 - ☑ If paying \$1,500 per replacement with a replacement rate of 50%, you will spend \$150,000 per year to maintain a 200 cow dairy.
 - ☑ If you can lower replacement rate to 30%, you will spend \$90,000 to maintain same 200 cow dairy.



Total Dairy Management



**Total Cost per Year to Maintain Herd Size
Purchasing All Replacements
Herd Size **200 Cows****

| Cow Replacement Rate | Price of Dairy Replacements | | | | | | | | |
|----------------------------|-----------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| | \$1,300 | \$1,400 | \$1,500 | \$1,600 | \$1,700 | \$1,800 | \$1,900 | \$2,000 | \$2,100 |
| 22% | 57,200 | 61,600 | 66,000 | 70,400 | 74,800 | 79,200 | 83,600 | 88,000 | 92,400 |
| 26% | 67,600 | 72,800 | 78,000 | 83,200 | 88,400 | 93,600 | 98,800 | 104,000 | 109,200 |
| 30% | 78,000 | 84,000 | 90,000 | 96,000 | 102,000 | 108,000 | 114,000 | 120,000 | 126,000 |
| 34% | 88,400 | 95,200 | 102,000 | 108,800 | 115,600 | 122,400 | 129,200 | 136,000 | 142,800 |
| 38% | 98,800 | 106,400 | 114,000 | 121,600 | 129,200 | 136,800 | 144,400 | 152,000 | 159,600 |
| 42% | 109,200 | 117,600 | 126,000 | 134,400 | 142,800 | 151,200 | 159,600 | 168,000 | 176,400 |
| 46% | 119,600 | 128,800 | 138,000 | 147,200 | 156,400 | 165,600 | 174,800 | 184,000 | 193,200 |
| 50% | 130,000 | 140,000 | 150,000 | 160,000 | 170,000 | 180,000 | 190,000 | 200,000 | 210,000 |

Prepared by: Jason Karszes, Senior Extension Associate, PRO-DAIRY, Cornell University



Economics



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⌘ Lower or little financial gain from internal herd growth if:

- ☑ Attain IHG by keeping unprofitable and/or low profit cows in the herd.
- ☑ Costs associated with preventing cows from leaving the herd too high.

How Many Replacements are You Generating?



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⌘ Combination of milking herd and replacement program.

⏏ How many calves born per year?

⏏ Calving interval

⏏ Ratio of heifer calves to bull calves.

⏏ How many heifer calves born dead?

⏏ DOA

⏏ How many calves don't complete replacement program?

⏏ Non-Completion percent – or “heifer cull rate”

How Many Replacements are You Generating?



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- ⌘ If all four in your favor, you can generate many replacements.
- ⌘ If 3 in your favor, may still be able to generate more heifers than needed.
- ⌘ If 2 in your favor, will be difficult to generate excess heifers.
- ⌘ If only one factor in your favor, may be difficult to maintain herd size.

Required Number of Heifer Calves per Year to Maintain Herd Size For Various Non-Completion Rates and Dairy Replacement Rates

Herd Size

200

DOA Rate^

5%

| Non-Completion Rate*, Percentage | Cow Replacement Rate, Percentage | | | | | | | |
|-------------------------------------|----------------------------------|------|------|------|------|------|-------|-------|
| | 23 | 26 | 29 | 33 | 36 | 39 | 42 | 45 |
| 2 | 49.5 | 55.9 | 62.4 | 71.0 | 77.4 | 83.9 | 90.3 | 96.8 |
| 4 | 44.0 | 57.1 | 63.7 | 72.5 | 79.1 | 85.7 | 92.3 | 98.9 |
| 6 | 44.9 | 58.4 | 65.2 | 74.2 | 80.9 | 87.6 | 94.4 | 101.1 |
| 8 | 46.0 | 52.9 | 66.7 | 75.9 | 82.8 | 89.7 | 96.6 | 103.4 |
| 10 | 47.1 | 54.1 | 68.2 | 77.6 | 84.7 | 91.8 | 98.8 | 105.9 |
| 12 | 48.2 | 55.4 | 62.1 | 69.9 | 79.5 | 86.7 | 94.0 | 108.4 |
| 14 | 49.4 | 56.8 | 64.2 | 71.6 | 81.5 | 88.9 | 96.3 | 111.1 |
| 16 | 50.6 | 58.2 | 65.8 | 73.4 | 83.5 | 91.1 | 98.7 | 113.9 |
| 18 | 51.9 | 59.7 | 67.5 | 75.3 | 85.7 | 93.5 | 101.3 | 116.9 |

* Non completion rate represents the percent of heifers that start the replacement system that don't enter the dairy herd.

^ DOA Rate represents the percent of heifer calves that are born dead.

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⌘ By generating more heifers than needs, you have the ability to generate additional earnings:

- ☑ If need 50 replacements and only generate 50, no gain.
- ☑ If generate 60, have 10 more than needed.
- ☑ If generate 40, have to purchase 10 to maintain herd size.

Economics



⌘ Lower or little financial gain from internal growth if:

⏏ The cost to raise the heifers is high.

⏏ Labor

⏏ Feed

⏏ Inventory – older calving age

⏏ If the quality of the replacement is low.

⏏ Less profitable animal in the herd: i.e. stunted or fat

Capturing the Value of Internal Growth



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- ⌘ Internal growth is having more animals than you need.
- ⌘ Capturing value becomes a management decision.
- ⌘ Many different ways to capture value.
- ⌘ Mission, vision, values, goals of family and business important when evaluating.

Growing Herd Size



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- ⌘ The extra animals generated enter the dairy herd.
- ⌘ Grow herd size without purchasing outside animals.
- ⌘ Have the ability to handle increased numbers or can easily add the capacity.
- ⌘ Increase profits through increased utilization of assets.
- ⌘ If not full or not at maximum size for site, may be best means to capture value.

Key Factors



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- ⌘ Control genetics and quality of replacements.
- ⌘ Slow steady growth over time.
- ⌘ Can grow with closed herd.
- ⌘ Operating expenses (feed, labor, etc). used to build balance sheet assets (cattle).
- ⌘ Has to be economical to grow.

Selling Milking Cows



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- ⌘ All replacements enter the herd.
- ⌘ Sell the least profitable dairy cows in the herd.
- ⌘ Market them for dairy purposes.
- ⌘ Average a higher price than beef price.

Key Factors



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- ⌘ Stable herd size.
- ⌘ Keep replacements – may be better genetics.
- ⌘ Keep calf that replacement heifer is carrying.
- ⌘ Improve dairy herd by replacing less profitable COWS.
- ⌘ Increase value of animals sold through higher price for dairy vs beef.
- ⌘ Capturing most of the calf crop.

Selling Springing Heifers



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- ⌘ Raise heifers.
- ⌘ Sell excess animals at calving for replacements purposes.

Key Factors



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- ⌘ Stable herd size.
- ⌘ Pick which animals enter herd vs are sold.
- ⌘ For animals sold – no risk if they don't make it through calving.
- ⌘ Possible loss of genetic progress: replacement and calf she's carrying.
- ⌘ Possible fewer calves entering system.

Selling Calves



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- ⌘ Sell excess heifers early in age.
- ⌘ Only raise enough that are needed to maintain herd size.

Key Factors



- ⌘ Stable herd size.
- ⌘ Limited replacement program capacity.
- ⌘ Pick which calves to raise.
- ⌘ Minimized replacement expense.
- ⌘ Increased calf sales.
- ⌘ Limited number of heifers if unusual event in dairy or replacement program.

Leasing Animals



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- ⌘ Keep all animals.
- ⌘ Lease out excess milking animals.

Key Factors



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- ⌘ Building herd size – increasing assets.
- ⌘ No investment in buildings/land, etc.
- ⌘ Keep all genetics and calves.
- ⌘ If animals come home – no longer closed herd.
- ⌘ Make return on investment in cattle.
- ⌘ Return may be negative!

Take Home Points



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- ⌘ Internal herd growth is a profit source under control of management.
- ⌘ Interaction among many areas of the business.
- ⌘ Operational costs building assets on the balance sheet, not just maintaining assets.
- ⌘ Means of capturing value is a management choice.